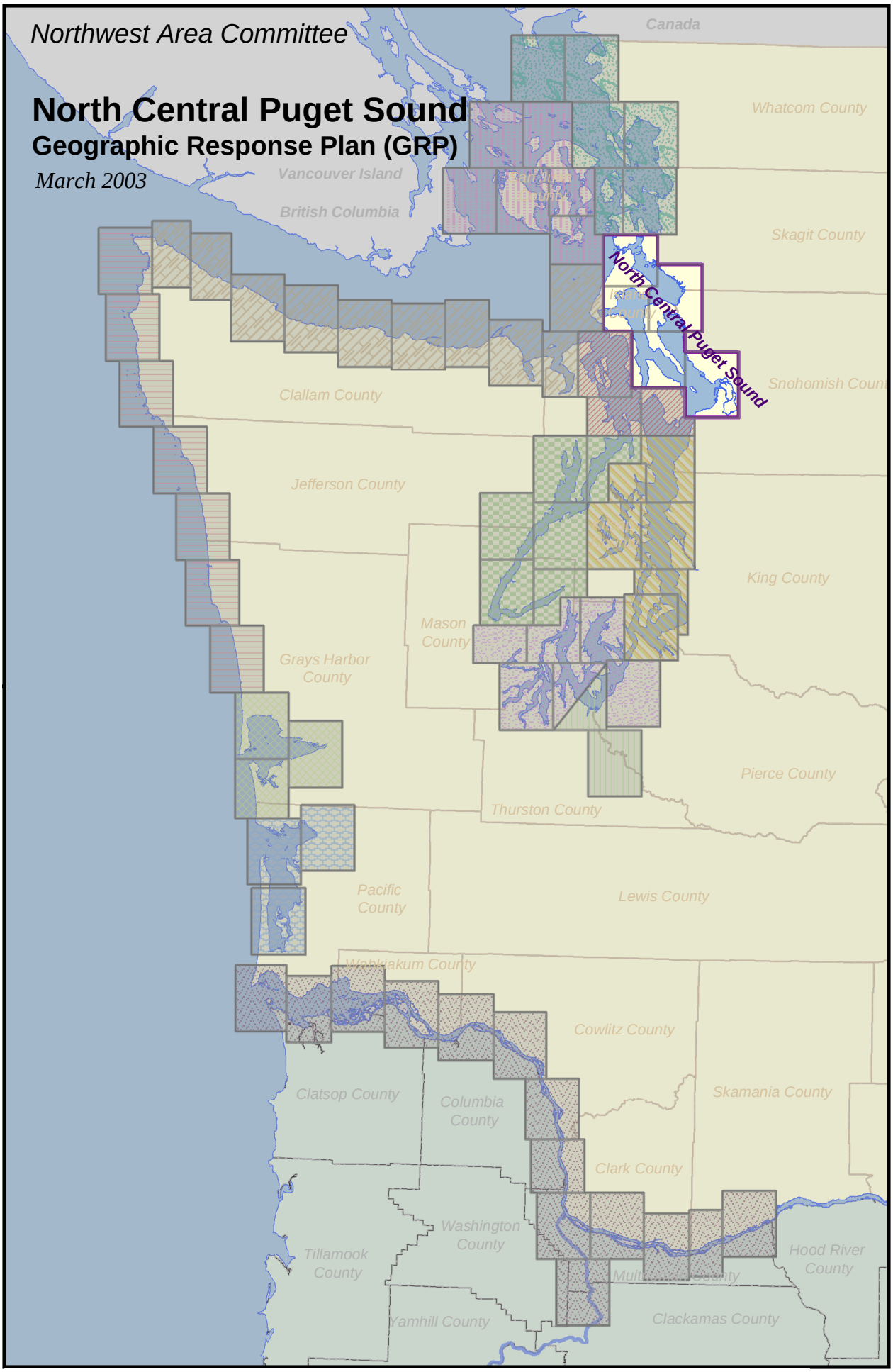


SPILL RESPONSE CONTACT SHEET

Required Notifications For Hazardous Substance or Oil Spills

USCG National Response Center ..... **(800) 424-8802**
In Oregon:
Department of Emergency Management ..... **(800) 452-0311**
In Washington:
Emergency Management Division ..... **(800) 258-5990**
Department of Ecology Northwest Regional Office ..... **(425) 649-7000**
Department of Ecology Southwest Regional Office ..... **(360) 407-6300**

U.S. Coast Guard

National Response Center	**(800) 424-8802**
Marine Safety Office Puget Sound:	
Watchstander	**(206) 217-6232**
Safety Office	(206) 217-6232
Marine Safety Office Portland:	
Watchstander	**(503) 240-9301**
Safety Office	(503) 240-9379
Pacific Strike Team	**(415) 883-3311**
District 13:	
MEP/drat	(206) 220-7210
Command Center	(206) 220-7001
Public Affairs	(206) 220-7237
Vessel Traffic Service (VTS)	**(206) 217-6050**

Environmental Protection Agency (EPA)

Region 10 Spill Response	**(206) 553-1263**
Washington Ops Office	(360) 753-9083
Oregon Ops Office	(503) 326-3250
Idaho Ops Office	(208) 334-1450
RCRA/ CERCLA Hotline	(800) 424-9346
Public Affairs	**(206) 553-1203**

National Oceanic Atmosphere Administration

Scientific Support Coordination	(206) 526-6829
Weather	(206) 526-6087

Canadian

Marine Emergency Ops/Vessel Traffic	(604) 666-6011
Environmental Protection	(604) 666-6100
B.C. Environment	(604) 356-7721

Department of Interior

Environmental Affairs	(503) 231-6157
	(503) 621-3682

U.S. Navy

Naval Shipyard	**(360) 476-3466**
Naval Base Seattle	(360) 315-5440
Supervisor of Salvage	**(202) 695-0231**

Army Corps of Engineers

Hazards to Navigation	(206) 764-3400

Swinomish Tribe

Tribal Office	(360) 466-3163
After Hours Emergencies	(360) 293-4684

Stillaguamish Tribe

Tribal Office	(360) 652-7362
After Hours Emergencies	(425) 513-3218

The Tulalip Tribes

Tribal Office	(360) 651-4000
After Hours Emergencies	(360) 651-4608

Federal O.S.R.O./ State Approved Response Contractors

All Out Indust. & Env. Services	(360) 414-8655
Certified Cleaning Services, Inc.	(253) 536-5500
Clean Sound Cooperative, Inc.	**(425) 783-0908**
Cowlitz Clean Sweep, Inc.	(360) 423-6316
FOSS Environmental	**(800) 337-7455**
Global Diving and Salvage	(206) 623-0621
Guardian Industrial Services, Inc.	(253) 536-0455
Island Oil Spill Association	(360) 378-5322
Matrix Service, Inc.	(360) 676-4905
MSRC	(425) 252-1300
National Response Corporation	(206) 340-2772

Washington State

Department of Ecology Headquarters	(360) 407-6900
Southwest Region	**(360) 407-6300**
Northwest Region	**(425) 649-7000**
Central Region	**(509) 575-2490**
Eastern Region	**(509) 456-2926**
Department of Fish and Wildlife	**(360) 534-8233**
Emergency Management Division	(360) 438-8639
	(800) 258-5990
State Patrol	
Bellevue	(425) 455-7700
Tacoma	(253) 536-6210
Bremerton	(360) 478-4646

Oregon State

Department of Environmental Quality	(503) 229-5733
Emergency Management	**(503) 378-6377**
	(800) 452-0311

HOW TO USE THIS GEOGRAPHIC RESPONSE PLAN

Purpose of Geographic Response Plan (GRP)

This plan prioritizes resources to be protected and allows for immediate and proper action. By using this plan, the first responders to a spill can avoid the initial confusion that generally accompanies any spill.

Geographic Response Plans are used during the emergent phase of a spill which lasts from the time a spill occurs until the Unified Command is operating and/or the spill has been contained and cleaned up. Generally this lasts no more than 24 hours. The GRPs constitute the federal on-scene coordinators' and state on-scene coordinators' (Incident Commanders) "orders" during the emergent phase of the spill. During the project phase, the GRP will continue to be used, and the planned operation for the day will be found in the Incident Action Plan's Assignment List (ICS Form 204). The Assignment List is prepared in the Planning Section with input from natural resource trustees, the Incident Objectives (ICS Form 202), Operations Planning Worksheet (ICS Form 215), and Operations Section Chief.

Strategy Selection

Chapter 4 contains complete strategy descriptions in matrix form, response priorities, and strategy maps. The strategies depicted in Chapter 4 should be implemented as soon as possible, following the priority table in Section 2 with the "Potential Spill Origin" closest to the actual spill origin. These strategy deployment priorities may be modified by the Incident Commander(s) after reviewing on scene information, including: tides, currents, weather conditions, oil type, initial trajectories, etc.

It is assumed that control and containment at the source is the number one priority of any response. If, in the responder's best judgment, this type of response is infeasible then the priorities laid out in Chapter 4, Section 2 take precedence over containment and control.

It is important to note that strategies rely on the spill trajectory. A booming strategy listed as a high priority would not necessarily be implemented if the spill trajectory and booming location did not warrant action in that area. However, the priority tables should be followed until spill trajectory information becomes available, and modifications to the priority tables must be approved by the Incident Commander(s).

The strategies discussed in this GRP have been designed for use with persistent oils and may not be suitable for other petroleum or hazardous substance products. For hazardous substance spills, refer to the Northwest Area Contingency Plan, Chapter 7000.

Standardized Response Language

In order to avoid confusion in response terminology, this GRP uses standard National Interagency Incident Management System, Incident Command System (NIIMS, ICS) terminology and strategy names, which are defined in Appendix A, Table A-1 (e.g. diversion, containment, exclusion).

North Central Puget Sound
Geographic Response Plan

Record of Changes

Date	Change Number	Summary of Changes	Initials of Person Making Change
May 12, 1994	Original Release	N/A	N/A
January 31, 1995	1st Change	Replacement of document - includes new chapters and revised Chapter 4 based on field verification	
March 2003	2nd Change	Update of Chapter 4 using GIS based maps, and new priority tables based on trajectory modeling.	D. Davis

North Central Puget Sound Geographic Response Plan
Table of Contents

North Central Puget Sound, Washington

GEOGRAPHIC RESPONSE PLAN

1. INTRODUCTION: SCOPE OF THIS PROJECT

Geographic Response Plans are intended to help the first responders to a spill avoid the initial confusion that generally accompanies any spill. This document serves as the federal and state on-scene-coordinators "orders" during a spill in the area covered by this GRP (see Chapter 3 for area covered). As such, it has been approved by the U.S. Coast Guard Marine Safety Office and the Washington State Department of Ecology Spills Program. Changes to this document are expected as more testing is conducted through drills, site visits, and actual use in spill situations. To submit comments, corrections, or suggestions please refer to Appendix C.

GRPs have been developed for the marine and inland waters of Washington, Oregon, and Idaho. They are prepared through the efforts and cooperation of the Washington Department of Ecology, Washington Department of Fish and Wildlife, Oregon Department of Environmental Quality, Idaho State Emergency Response Commission, the U.S. Coast Guard, the Environmental Protection Agency, tribes, other state and federal agencies, response organizations, and local emergency responders.

GRPs were developed through workshops involving federal, state, and local oil spill emergency response experts, response contractors, and representatives from tribes, industry, ports, environmental organizations, and pilots. Workshop participants identified resources which require protection, developed operational strategies, and pinpointed logistical support. A similar process has been used for major updates.

Following the workshops, the data gathered was processed and reproduced in the form of maps and matrices which appear in Chapters 4 through 6. The maps in Chapters 5 and 6 were generated using Canvas. Maps for Chapter 4 were generated using ArcView GIS. The matrices were created using MS Excel, and the balance of each GRP was produced using MS Word.

The first goal of a GRP was to identify, with the assistance of the Washington State Natural Resource Damage Assessment Team, resources needing protection; response resources (boom, boat ramps, vessels, etc.) needed, site access and staging, tribal and local response community contacts, and local conditions (e.g. physical features, hydrology, currents and tides, winds and climate) that may affect response strategies. Note that GRPs only address protection of sensitive **public** resources. It is the responsibility of private resource owners and/or potentially liable parties to address protection of private resources (such as commercial marinas, private water intakes, and non-release aquaculture facilities).

Secondly, response strategies were developed based on the sensitive resources noted, hydrology, and climatic considerations. Individual response strategies identify the amount of boom necessary for implementation. The response strategies are then applied to Potential Spill Origins and trajectory modeling, and prioritized, taking into account factors such as resource sensitivity, feasibility, wind, and tidal conditions.

Draft strategy maps and matrices were sent out for review and consideration of strategy viability. Field verification was conducted for some strategies, and changes proposed by the participants were included in

a semi-final draft, which was offered for final review to all interested parties and the participants of the field verification.
Finally, the general text of the GRP was compiled along with the site description, reference maps, and logistical support.

Items included in Logistical Support:

- Location of operations center for the central response organization;
- Local equipment and trained personnel;
- Local facilities and services and appropriate contacts for each;
- Site access & contacts;
- Staging areas;
- Helicopter and air support;
- Local experts;
- Volunteer organizations;
- Potential wildlife rehabilitation centers;
- Marinas, docks, piers, and boat ramps;
- Potential interim storage locations, permitting process;
- Damaged vessel safehavens;
- Vessel repairs & cleaning;
- Response times for bringing equipment in from other areas.

2. SITE DESCRIPTION

North Central Puget Sound is divided into three areas for the geographic response plan: Skagit Bay, Saratoga Passage, and Possession Sound including Port Susan. It covers the waters east of Whidbey Island to the mainland coast of Washington State. Local economies are based primarily on natural resource use and tourism.

Refer to Chapter 6 for detailed resource information.

2.1. Physical Features

North Central Puget Sound is a diverse area that includes many types of shorelines, from large marshes on the eastern mainland side to wave cut platforms on the opposite side. Much of the land surrounding this area is rural, rural residential, and conservancy. Everett, a port heavily influenced by logging trade, is located next to an extremely sensitive marsh area that hosts abundant marine life. In addition, the Skagit River Delta , comprised of marsh and tidal flats is a biologically rich location. North Central Puget Sound includes the following shoreline habitats:[1]

Sheltered rocky flats
Wave cut platforms
Sand and cobble beaches
Sand and gravel beaches
Exposed tidal flats
Sheltered tidal flats
Marshes

There are several vessel traffic zones located between Whidbey Island and the mainland coast of Washington.

2.2. Hydrology

Puget Sound is an estuary with a generally two-layer flow. Surface waters, less saline due to input from freshwater sources, move seaward, while bottom waters tend to flow inland. Mixing of these two layers occurs in shallower areas such as Deception Pass.

Studies show that the surface current diverges off the Skagit River Delta, as currents north of the delta flow in a northerly direction from top to bottom, then westward through Deception Pass. The net surface current south of the delta is inland.

Bottom currents entering Puget Sound through Admiralty inlet tend to diverge at the northern end of the Central Basin. Some of the flow moves north into Possession Sound, continues to Saratoga Passage and exits through Deception Pass.

Oil from a spill near Anacortes in 1971 was later found in deep water near Kiket Island east of Deception Pass, indicating that oil was mixed downward within Deception Pass and carried inland by deep water currents.[2]

[1] National Oceanic and Atmospheric Administration, Environmental Sensitivity Index, Strait of Juan de Fuca & Northern Puget Sound, Central & Southern Puget Sound (Seattle: 1984).
[2] Evans Hamilton, Inc. and D.R. Systems, Inc., Puget Sound Environmental Atlas, vol. 1 (1987) 122-125.

2.3. Currents and Tides

The mean tidal range (MHW - MLW) for North Central Puget Sound is 6.6 to 8.0 feet. The diurnal range (MHHW - MLLW) is 10.2 to 11.6 feet.[3]

The currents in Skagit Bay, Saratoga Passage, Possession Sound and Port Susan are generally weak and variable. The notable exception is Deception Pass where the average flood is 5.2 knots and the average ebb is 6.6 knots.[4]

Tides and currents vary with seasonal runoff and lunar cycles in localized areas. Spill responders should consult tide and current tables for their particular location.

2.4. Winds

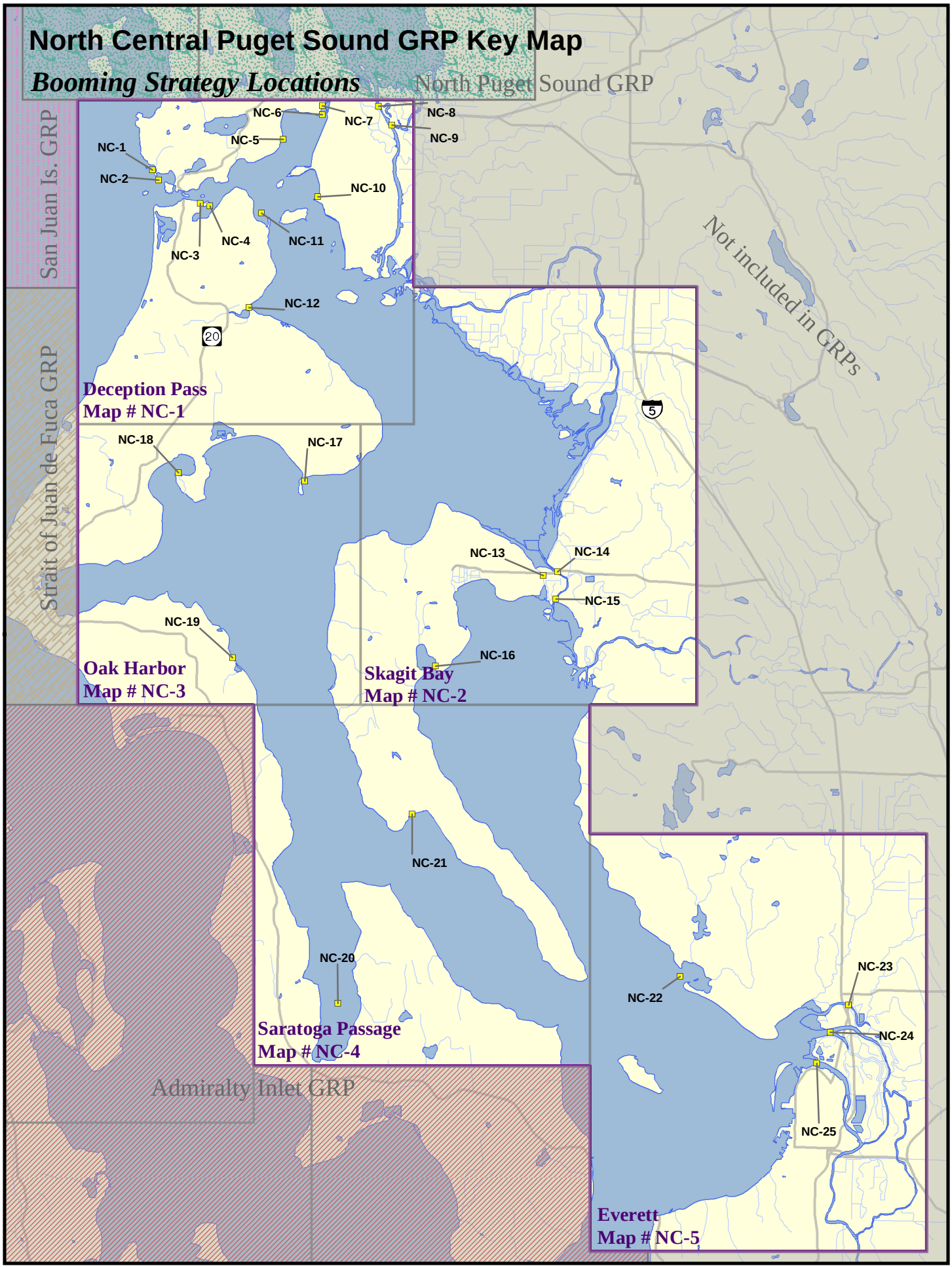
Because Puget Sound is bordered by mountains to the south and east, the strong Pacific Ocean westerly flow north of the Olympic Mountains is split to the north and south when it reaches the east side of the Sound. In general, during April through May, the winds split to the northwest and southwest from 10 to 20 mph near the northern end of Saratoga Passage over Whidbey Island. The trend continues for this area from June through September.

Port Susan and Possession Sound generally have northwest winds from April through September. Winds from October through March are usually southeast from 10 to 20 mph throughout the entire area from Possession Sound to Deception Pass.[5] Local wind conditions may vary.

2.5. Climate

The area has a maritime climate with cool summers and mild winters. The annual precipitation is between 18 and 50 inches. Fog is common throughout the area during autumn and winter months.

[3] National Oceanic and Atmospheric Administration, Tide Tables West Coast of North and South America (1994).
[4] National Oceanic and Atmospheric Administration, Tidal Current Tables Pacific Coast of North and South America (1994).
[5] State of Washington Department of natural Resources, Washington Marine Atlas, North Inland Waters, vol. 1 (1972).


North Central Puget Sound GRP Key Map
Booming Strategy Locations
North Puget Sound GRP
San Juan Is. GRP
Strait of Juan de Fuca GRP
Admiralty Inlet GRP
Not included in GRPs
NC-1
NC-2
NC-3
NC-4
NC-5
NC-6
NC-7
NC-8
NC-9
NC-10
NC-11
NC-12
NC-13
NC-14
NC-15
NC-16
NC-17
NC-18
NC-19
NC-20
NC-21
NC-22
NC-23
NC-24
NC-25
20
5
Deception Pass
Map # NC-1
Oak Harbor
Map # NC-3
Skagit Bay
Map # NC-2
Saratoga Passage
Map # NC-4
Everett
Map # NC-5

4. GENERAL PROTECTION/COLLECTION STRATEGIES

4.1. Chapter Overview

This chapter details the specific response strategies and resources to protect as outlined by the participants of the GRP workshop for the North Central Puget Sound area. It describes the strategies determined for each area and the prioritization of those strategies. Note that GRPs only address protection of sensitive **public** resources. It is the responsibility of private resource owners and/or potentially liable parties to address protection of private resources (such as commercial marinas, private water intakes, and non-release aquaculture facilities).

Maps & Matrices

The maps in this chapter provide information on the specific location of booming strategies. They are designed to help the responder visualize response strategies. Details of each booming strategy are listed in corresponding matrix tables. Each matrix indicates the exact location, intent and implementation of the strategy indicated on the map. The "Status" column describes whether the strategy has been visited or tested in the field, and the date of the visit/test. Most strategies include a number for the corresponding shoreline photo, which is available on the Washington Department of Ecology's internet site at http://apps.ecy.wa.gov/shorephotos/.

Major Protection Techniques

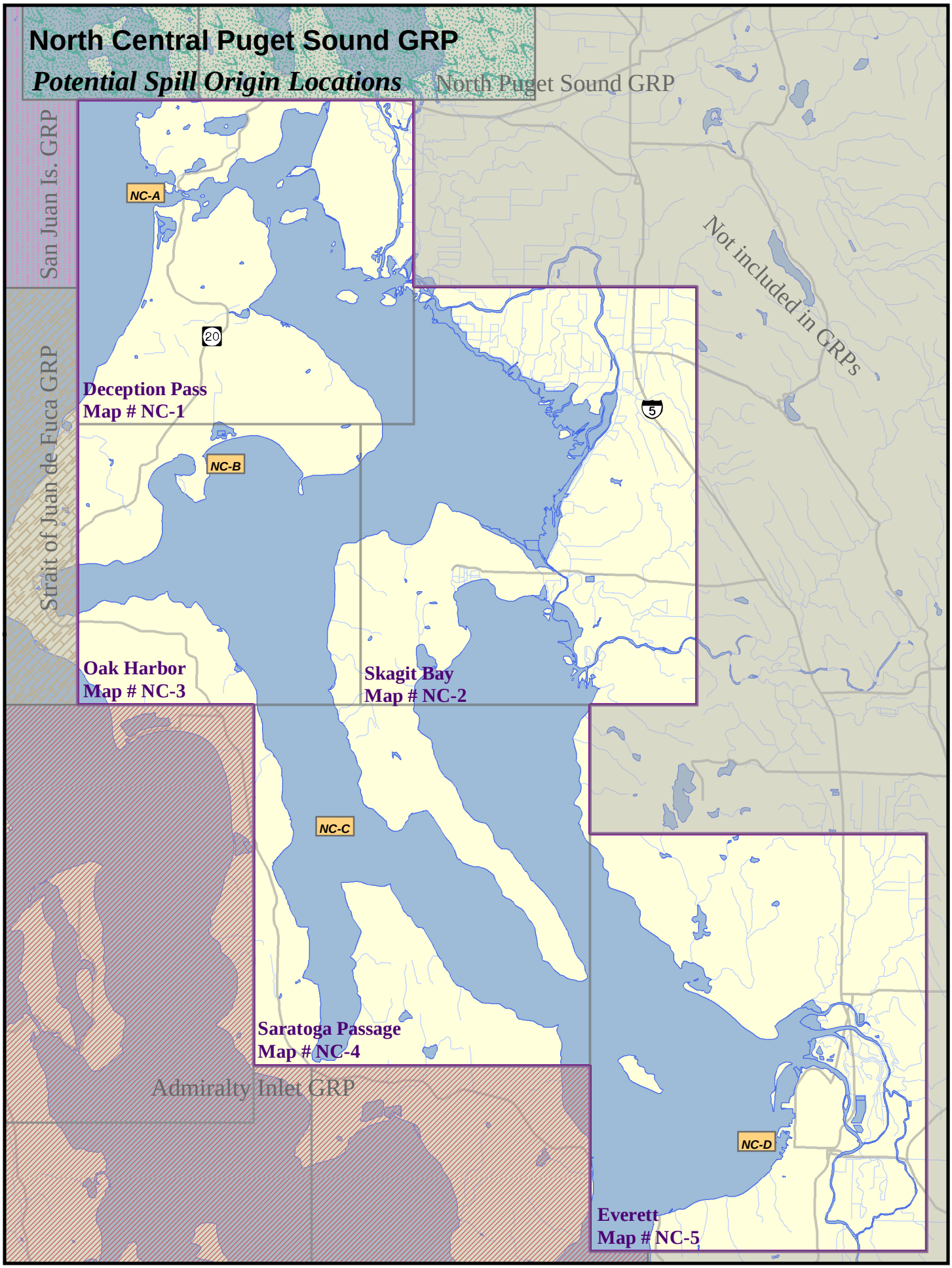
All response strategies fall into one of three major techniques that may be utilized either individually or in combination. The strategies listed in Section 4.2 are based on the following techniques, and are explained in detail in Section 4.3:

Dispersants: Washington State Policy currently does not allow use of dispersants in this area. Certain chemicals break up slicks on the water. Dispersants can decrease the severity of a spill by speeding the dissipation of certain oil types. Their use will require approval of the Unified Command. Dispersants will only be used in offshore situations under certain conditions, until further determinations are made by the Area Committee and published in the Area Contingency Plan.

In Situ Burning: Approval to burn in this area is unlikely due to the proximity of population to a potential burn site. Burning requires the authorization of the Unified Command, who determine conformance of a request to burn with the guidelines set forth in the Area Plan. This option is preferable to allowing a slick to reach the shore provided that population areas are not exposed to excessive smoke. Under the right atmospheric conditions, a burn can be safely conducted in relative close proximity to human population. This method works on many types of oil, and requires special equipment including a fire boom and igniters.

Mechanical Recovery and Protection Strategies: If a spill is too close to shore to use In Situ burning or dispersants, the key strategies are skimming and use of collection, diversion, or exclusion booming to contain and recover the oil, and prevent it from entering areas with sensitive wildlife and fisheries resources. These options are described in detail in Appendix A. Specific skimming strategies are not listed in the maps and matrices, but skimming should be used whenever possible and is often the primary means of recovering oil and protecting resources, especially when booming is not possible or feasible.

Priorities: The strategy priority tables (Section 4.2.) were developed using specific locations where spills are likely to occur. Trajectory modeling was used for each of these "Potential Spill Origins" to identify sensitive resources that would likely be impacted within the initial hours of the spill. A booming strategy priority table was developed for each of the "Potential Spill Origins" based on the sensitivity of resources, feasibility, etc. **Booming strategies should be deployed following the priority table for the "Potential Spill Origin" closest to the actual spill origin.** The map on page 4-2 shows the locations of all Potential Spill Origins for the North Central Puget Sound GRP. The booming strategies indicated in the priority tables are explained in detail in the Maps & Matrices section (Section 4.3.). It is implied that control and containment at the source is the number one priority of any response. If in the responder's best judgment this is not feasible, then the priorities laid out in the priority tables take precedence over containment and control.


North Central Puget Sound GRP
Potential Spill Origin Locations
North Puget Sound GRP
San Juan Is. GRP
Strait of Juan de Fuca GRP
Not included in GRPs
Admiralty Inlet GRP
NC-A
NC-B
NC-C
NC-D
20
5
Deception Pass
Map # NC-1
Skagit Bay
Map # NC-2
Oak Harbor
Map # NC-3
Saratoga Passage
Map # NC-4
Everett
Map # NC-5

4.2.2 Booming Strategy Priority Tables

Table 4-1

Potential Spill Origin: NC-A - Deception Pass			
BOOMING PRIORITY	STRATEGY NUMBER	MAP PAGE NUMBER	COMMENTS
1	NC-1	4-5	
2	NC-2	4-5	
3	NC-3	4-5	
4	NC-4	4-5	
5	NC-11	4-5	
6	NC-5	4-5	
7	NC-10	4-5	
8	NC-12	4-5	

Table 4-2

Potential Spill Origin: NC-B – Naval Air Station Whidbey Island, Crescent Harbor			
BOOMING PRIORITY	STRATEGY NUMBER	MAP PAGE NUMBER	COMMENTS
1	NC-18	4-7	
2	NC-17	4-7	

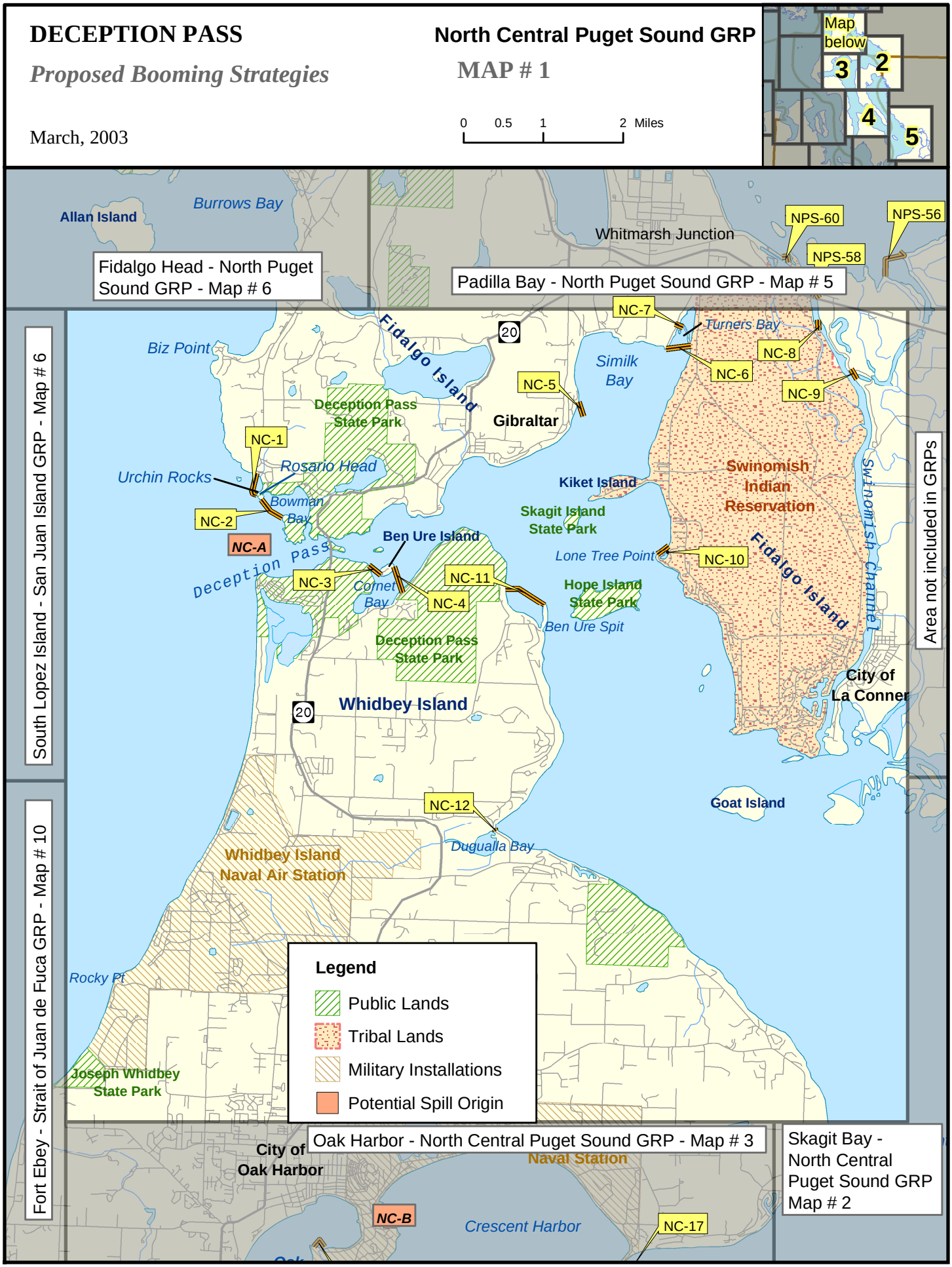
Table 4-3

Potential Spill Origin: NC-C - Saratoga Passage, mouth of Holmes Harbor			
BOOMING PRIORITY	STRATEGY NUMBER	MAP PAGE NUMBER	COMMENTS
1	NC-21	4-8	
2	NC-20	4-8	
3	NC-19	4-7	

Table 4-4

Potential Spill Origin: NC-D - Everett Harbor, Navy Homeport			
BOOMING PRIORITY	STRATEGY NUMBER	MAP PAGE NUMBER	COMMENTS
1	NC-25	4-9	
2	NC-24	4-9	
3	NC-23	4-9	
4	NC-22	4-9	
5	NC-21	4-8	
6	NC-19	4-7	

4.3.1 Proposed Booming and Collection Strategies: Maps



SKAGIT BAY

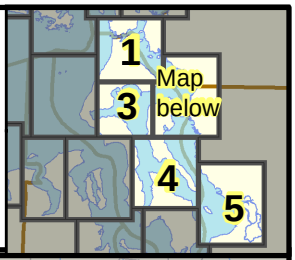
Proposed Booming Strategies

March, 2003

North Central Puget Sound GRP

MAP # 2

0 0.5 1 2 Miles



Area not included in GRPs

Deception Pass - North Central Puget Sound GRP - Map # 1

Oak Harbor - North Central Puget Sound GRP - Map # 3

Area not included in GRPs

Saratoga Passage - North Central Puget Sound GRP - Map # 4

Area not included in GRPs

North Fork Skagit River

South Fork Skagit River

Skagit Delta

Fir Island

Conway

534

Skagit State Wildlife Recreational Area

5

Strawberry Point

Skagit Bay

Brown Point

Utsalady Point

Utsalady Bay

Camano Island

NC-14

City of Stanwood

NC-13

West Pass

Davis Slough

South Pass

NC-15

532

Stillaguamish River

Triangle Cove

NC-16

Legend

- Public Lands
- Tribal Lands
- Military Installations
- Potential Spill Origin

OAK HARBOR

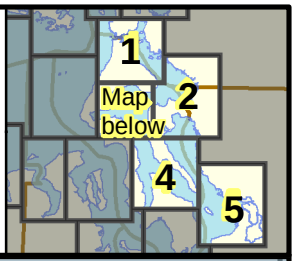
Proposed Booming Strategies

March, 2003

North Central Puget Sound GRP

MAP # 3

0 0.5 1 2 Miles



Legend

- Public Lands
- Tribal Lands
- Military Installations
- Potential Spill Origin

Deception Pass - North Central Puget Sound GRP - Map # 1

City of Oak Harbor

Whidbey Island Naval Station

Strawberry

NC-B

Crescent Harbor

NC-17

Whidbey Island

Oak Harbor

NC-18

Polnell Point

Maylor Point

20

Fort Ebey - Strait of Juan de Fuca GRP - Map # 10

Skagit Bay - North Central Puget Sound GRP - Map # 2

Penn Cove Park

Penn Cove

Long Point

City of Coupeville

20

Saratoga Passage

Camano Island

NC-19

Race Lagoon

Onamac Point

Port Townsend - Admiralty Inlet GRP - Map # 1

Saratoga Passage - North Central Puget Sound GRP - Map # 4

Crockett Lake

AI-19

Admiralty Head

Keystone Ferry Landing

AI-A

SARATOGA PASSAGE

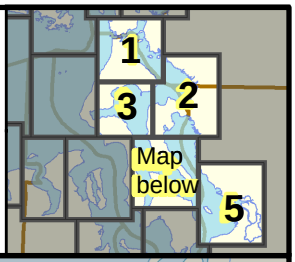
Proposed Booming Strategies

March, 2003

North Central Puget Sound GRP

MAP # 4

0 0.5 1 2 Miles



Oak Harbor - North Central Puget Sound GRP - Map # 3

NC-16

Skagit Bay - North Central Puget Sound GRP - Map # 2

Area not included in GRPs

Port Townsend - Admiralty Inlet GRP - Map # 1

Everett - North Central Puget Sound GRP - Map # 5

Camano Island

Saratoga Passage

NC-21

Camano Is State Park

Elger Bay

Kayak Point

Port Susan

Whidbey Island

NC-C

Lowell Point

Tulalip Indian Reservation

Rocky Point

East Point

Dines Point

525

Whidbey Island

Holmes Harbor

Camano Head

NC-20

Sandy Point

Freeland Cnty Park

Port Ludlow - Admiralty Inlet GRP Map # 2

Useless Bay - Admiralty Inlet GRP - Map # 3

Mutiny Bay

AI-31

Legend

- Public Lands
- Tribal Lands
- Military Installations
- Potential Spill Origin

EVERETT

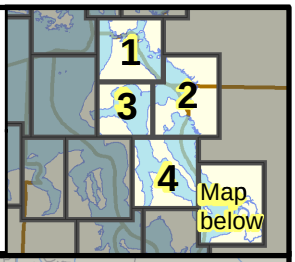
Proposed Booming Strategies

March, 2003

North Central Puget Sound GRP

MAP # 5

0 0.5 1 2 Miles



Area not included in GRPs

Saratoga Passage - North Central Puget Sound GRP - Map # 4

Useless Bay - Admiralty Inlet GRP - Map # 3

Area not included in GRPs

Area not included in GRPs

Legend

- Public Lands
- Tribal Lands
- Military Installations
- Potential Spill Origin

Tulalip Indian Reservation

Tulalip Military Reservation

Tulalip

Hermosa Point

NC-22

Tulalip Bay

City of Marysville

528

Ebey Slough

NC-23

NC-24

Priest Point

Union Slough

Steamboat Slough

Smith Island

Preston Point

Snohomish River

Gedney Island

Possession Sound

NC-25

Port Gardner

529

Spencer Island

City of Everett

NC-D

Clinton Ferry Terminal

2

Ebey Island

Ferry Route

Elliot Point

Mukilteo State Park

City of Mukilteo

525

4.3.2 Proposed Booming and Collection Strategies: Matrices

Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
NC-1	New Strategy 9/01	Urchin Rocks (Northwest of Bowman Bay and Deception Pass) SKA0468 48º-25.030'N 122º-39.935'W	Exclusion - Keep oil off Urchin Rocks and out of the tide pools on the north shore of Rosario Head.	1900'	Deploy boom from Rosario Beach, out to and around Urchin Rocks, and back to the west side of Rosario Head to protect the tide pools on the north shore of Rosario Head. This area is exposed to southerly and westerly weather, fall back and protect as much of Urchin Rocks and the tide pools as possible if the strategy cannot be deployed as described. Rosario Beach is a low priority for this strategy.	Stage from the Bowman Bay boat ramp parking lot, the Deception Pass State Park, or Anacortes.	By boat from the ramp in Bowman Bay (SKA0472), or from Anacortes. Vehicle access from Highway 20 to Rosario Road.	Protect the tide pools on Rosario Head, rocky shoreline, and kelp beds; seabird concentrations, and sensitive nesting species.
NC-2	Field Tested 5/00	Bowman Bay and Sharpe Cove (Northwest of Deception Pass) SKA0469 48º-24.820'N 122º-39.565'W	Exclusion - Keep oil out of the bay and cove.	1900'	Deploy boom in a chevron configuration across the entrance to the bay and the cove from the south side of Rosario Head to the northwest corner of Reservation Head. Run the boom between Gull Rocks and Coffin Rocks. This area is exposed to southerly and westerly weather, fall back and protect as much of the bay and cove as possible if the strategy cannot be deployed as described.	Stage from the Bowman Bay boat ramp parking lot, the Deception Pass State Park, or Anacortes.	By boat from the ramp in Bowman Bay (SKA0472), or from Anacortes. Vehicle access from Highway 20 to Rosario Road.	Protect rocky shoreline and kelp beds, seabird concentrations, and sensitive nesting species.
NC-3		Cornet Bay - West entrance (West shore to Ben Ure Island, north end of Whidbey Island) SKA0311 48º-24.210'N 122º-37.880'W	Exclusion - Keep oil out of the bay.	1000'	Deploy boom across the west entrance to the bay from the west shore to the dock on the west end of Ben Ure Island.	Stage from the Cornet Bay boat ramp parking lot, the Deception Pass State Park, or Anacortes.	By boat from the ramp in Cornet Bay (ISL0305), or from Anacortes. Vehicle access from Highway 20 to Cornet Bay Road.	State Park recreational resources.

4.3.2 Proposed Booming and Collection Strategies: Matrices

Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
NC-4		Cornet Bay - East entrance (Ben Ure Island to the east shore, north end of Whidbey Island) SKA0317 48º-24.140'N 122º-37.500'W	Exclusion/ Collection - Keep oil out of the bay.	1400'	Deploy boom across the east entrance to the bay from the east end of Ben Ure Island to the pier at the Cornet Bay boat ramp for collection with a vac truck at the boat ramp.	Stage from the Cornet Bay boat ramp parking lot, the Deception Pass State Park, or Anacortes.	By boat from the ramp in Cornet Bay (ISL0305), or from Anacortes. Vehicle access from Highway 20 to Cornet Bay Road.	State Park recreational resources.
NC-5	Strategy modified 9/01	Gibraltar (West side of Similk Bay) SKA0494 48º-25.785'N 122º-34.785'W	Collection - Keep oil out of Similk Bay.	1000'	Deploy boom at an angle to the south from the beach at Gibraltar to collect oil moving along the shoreline from Deception Pass.	Stage from the Deception Pass State Park, Cornet Bay, or Anacortes.	By boat from the ramp in Cornet Bay (ISL0305), or from Anacortes. Vehicle access from Highway 20 to Gibraltar Road.	Dungeness crab, large waterfowl concentration, eagle nests, high productivity area.
NC-6		Turner Bay - Outer Strategy (Northeast corner of Similk Bay) SKA0510 48º-26.715'N 122º-33.025'W	Exclusion - Keep oil out of the bay.	1700'	Deploy boom across the outer entrance to the bay from the point on the west shore to the base of the sand spit on the east shore. May be difficult to deploy at low tide, much of the area becomes a mud flat. Deploy NC-7 first at low tide.	Stage from the road on the west shore (SKA0506), the Swinomish Channel boat ramp parking lot (under Highway 20), or Anacortes.	By boat from the ramp in Cornet Bay (ISL0305), or from Anacortes. Vehicle access from Highway 20 to Reservation Road.	

4.3.2 Proposed Booming and Collection Strategies: Matrices

Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
NC-7	New Strategy 9/01	Turner Bay - Inner Strategy (Northeast corner of Similk Bay) SKA0512 48º-26.950'N 122º-33.020'W	Exclusion - Keep oil out of the bay.	300'	Deploy boom across the inner entrance to the bay from the tip of the sand spit on the east shore to the beach on the west shore. Deploy before NC-6 at low tide.	Stage from the road on the west shore (SKA0506), the Swinomish Channel boat ramp parking lot (under Highway 20), or Anacortes.	By boat from the ramp in Cornet Bay (ISL0305), or from Anacortes. Vehicle access from Highway 20 to Reservation Road.	
NC-8		Pocket on west side of Swinomish Channel (previously NPS-59) SKA0596 48º-26.935'N 122º-30.810'W	Deflection/ Collection - Keep oil from moving into the Swinomish Channel.	500'	Deploy 500' of boom at the small pocket on the west shore of the channel south of the Highway 20 bridge to deflect the oil into a natural collection area.	Stage at the Swinomish Channel boat ramp parking lot (under Highway 20).	By boat from the Swinomish Channel ramp. Vehicle access from I-5 to Highway 20, go west and exit at the Swinomish Casino, turn back east to a dike road on the west side of the channel (SKA0349). Vac truck access from the dike road.	Wetland habitat; waterfowl and shorebirds.

4.3.2 Proposed Booming and Collection Strategies: Matrices

Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
NC-9	Strategy modified 9/01	Swinomish Channel (East side, connection to Higgins Slough and the south end of Telegraph Slough) SKA0599 48º-26.475'N 122º-30.235'W	Exclusion - Keep oil out of the entrance to the sloughs.	400'	Deploy boom across the entrance to the sloughs to protect the tidal marsh at the entrance. Connection to the sloughs is through culverts or tide gates inside the marsh area.	Stage from the dike road on the east shore of the Swinomish Cannel, the Swinomish Channel boat ramp parking lot (under Highway 20), or Anacortes.	By boat from the Swinomish Channel boat ramp (SKA0595), or from Anacortes. Vehicle access from Highway 20 to the east dike road.	Waterfowl concentrations.
NC-10	New Strategy 9/01	Lone Tree Point (Tosi Pt.) Lagoon (Northeast of Hope Island and south of Kiket Island) SKA0538 48º-24.485'N 122º-33.165'W	Exclusion - Keep oil out of the lagoon.	100'	Deploy boom across the entrance to the lagoon. Extreme high tides may flood the lagoon from the south side.	Stage from the beach near the lagoon, or from Anacortes.	By boat from the ramp in Cornet Bay (ISL0305), or from Anacortes. Vehicle access from Highway 20 to Reservation Road to Snee-oosh Road to private road.	Waterfowl concentrations.
NC-11	Field Tested 5/00	Ben Ure Spit (Northeast corner of Whidbey Island) ISL0295 48º-24.025'N 122º-35.375'W	Exclusion - Keep oil out of the embayment behind the spit.	3000'	Deploy boom in a chevron configuration, with 2000' of boom to the northwest from the tip of the spit for one leg, and then 1000' directly west to the shoreline for the other leg.	Stage from the Cornet Bay boat ramp parking lot, the Deception Pass State Park, or Anacortes.	By boat from the ramp in Cornet Bay (ISL0305), or from Anacortes. Vehicle access from Highway 20 to Troxell Road.	Eelgrass beds, herring, sand lance, and surf smelt spawning, hardshell clams, shorebird concentrations.

4.3.2 Proposed Booming and Collection Strategies: Matrices

Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
NC-12		Dugualla Bay (Northeast side of Whidbey Island) ISL0282 48º-21.415'N 122º-35.815'W	Exclusion - Keep oil out of the inner bay.	100'	Deploy boom in front of the culvert/tide gate. Closing the tide gate or blocking the culvert with boards, sandbags, etc. would be more effective.	Stage from the road at the site.	Vehicle access from Highway 20 to Dugualla Bay Road to site.	Fisheries and waterfowl concentrations.
NC-13		Davis Slough (at Highway 532 bridge) ISL0617 48º-14.365'N 122º-23.645'W	Exclusion/ Collection - Keep oil from moving through the slough.	400'	Deploy boom across the slough south of the bridge at Highway 532. Angle the boom to collect oil from the east side, depending on the direction the oil is coming from.	Stage from parking areas on either side of the bridge, the parking lot at the Camano Island State Park boat ramp (ISL0677), or Everett.	Vehicle access from I-5 to Highway 532 to parking areas on each side of the bridge over the slough.	Tidal marshes, waterfowl concentrations, and sensitive nesting species.
NC-14	New Strategy 9/01	West Pass (at Highway 532 bridge) SNO0020 48º-14.415'N 122º-23.015'W	Exclusion/ Collection - Keep oil from moving through the pass.	400'	Deploy boom across the pass under the bridge at Highway 532. Angle the boom to collect oil from either side, depending on the direction the oil is coming from.	Stage from the road and shore on either side under the bridge, the parking lot at the Camano Island State Park boat ramp (ISL0677), or Everett.	By boat from the Camano Island State Park boat ramp (ISL0677), or Everett. Vehicle access from I-5 to Highway 532 to Stanwood, roads to the shore on each side of the bridge.	Waterfowl concentrations and sensitive nesting species.

4.3.2 Proposed Booming and Collection Strategies: Matrices

Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
NC-15		South Pass (North end of Port Susan, connection to Skagit Bay) SNO0023 48º-13.695'N 122º-23.070'W	Exclusion/ Collection - Keep oil from moving through the pass.	500'	Deploy boom across the entrance to South Pass at a narrow spot between the dike on each side. Angle the boom to collect oil from the road on the west side, depending on the direction the oil is coming from.	Stage from the road on the west shore, the parking lot at the Camano Island State Park boat ramp (ISL0677), or Everett.	By boat from the Camano Island State Park boat ramp (ISL0677), or Everett. Vehicle access from I-5 to Highway 532 to Stanwood, take first road south after the bridge over the pass.	Waterfowl concentrations and sensitive nesting species.
NC-16	New Strategy 9/01	Triangle Cove (East side of Camano Island) ISL0588 48º-11.765'N 122º-27.870'W	Exclusion/ Collection - Keep oil out of the cove.	800'	Deploy boom from Barnum Point to the tip of the sand spit at the entrance to the cove, and then back to the east shore at an angle to the northeast for collection from Barnum Road. Tidal currents through the entrance can be strong, but the double boom configuration should slow the oil enough for collection at the second boom.	Stage from Barnum Road or the private road out to the end of the sand spit, or from Everett.	By boat from Everett. Vehicle access from I-5 to Highway 532 to East Camano Drive to Barnum Road.	Tidal marshes, waterfowl concentrations, and sensitive nesting species.
NC-17	Strategy modified 9/01	Polnell Point (East side of Crescent Harbor, east side of Whidbey Island) ISL0247 48º-16.655'N 122º-33.490'W	Collection - Prevent oil from moving down Saratoga Passage.	1500'	Deploy boom from the beach on the south end of the sand spit leading to Polnell Point to the northeast to collect oil moving along the beach from the east.	Stage from the road to Polnell Point, or from the Oak Harbor Marina.	By boat from the Oak Harbor Marina, or Everett. Vehicle access from Highway 20 to Torpedo Road to Midway Road. Access to the point is through a locked gate, contact the Whidbey Island Naval Air Station at 360-257-4330 for entry.	Sensitive nesting species, waterfowl concentrations, other Saratoga Passage resources.

4.3.2 Proposed Booming and Collection Strategies: Matrices

Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
NC-18	Field Tested 4/03	Maylor's Marsh (South side of Oak Harbor, east side of Whidbey Island) ISL0222 48º-16.655'N 122º-33.490'W	Exclusion - Keep oil out of marsh.	600'	Deploy boom in a chevron configuration from the beach at the entrance to Maylor's Marsh. Tidal currents through the entrance of the marsh can be very strong. Anchor chevron apex far enough off shore so oil is not entrained under the boom by tidal currents.	Stage from the Oak Harbor Marina, or Everett.	By boat from the Oak Harbor Marina, or Everett. Vehicle access from Highway 20 to Pioneer Way to West Coral Sea Ave. to Cascade Drive. Site is on the Naval Seaplane Base, contact the Whidbey Island Naval Air Station at 360-257-4330 for entry.	Marsh habitat, sensitive nesting species, waterfowl concentrations.
NC-19	New Strategy 9/01	Race Lagoon (East side of Whidbey Island, just south of Penn Cove) ISL0151 48º-11.660'N 122º-36.010'W	Exclusion - Keep oil out of the Lagoon.	200'	Deploy boom across the entrance to the lagoon.	Stage from the Oak Harbor Marina, or Everett.	By boat from the Oak Harbor Marina, or Everett. Vehicle access from Highway 20 to Harrington Road through private property at the beach.	Waterfowl concentrations.
NC-20		Holmes Harbor (Southeast side of Whidbey Island) - General strategy for the entire harbor. 48º-3.500'N 122º-32.000'W	Exclusion/ Deflection/ Collection - Protect beaches throughout the harbor.	3000'	Based on trajectories, deploy boom to protect as much of the shoreline in the harbor as possible that is expected to be impacted. All beaches in the harbor have high resource value.	Stage from the Freeland County Park (ISL0095), or Everett.	By boat from the ramp at the Freeland County Park, or Everett. Vehicle access from the Mukilteo Ferry to Highway 525 to Freeland, or from Anacortes on Highway 20 to Highway 525.	All beaches in the area are baitfish spawning habitat.

4.3.2 Proposed Booming and Collection Strategies: Matrices

Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
NC-21	New Strategy 9/01	Elger Bay (Southwest side of Camano Island) ISL0682 48º-7.770'N 122º-28.620'W	Exclusion - Keep oil out of the tidal marsh behind the sand spit.	300'	Deploy boom across the entrance to the tidal marsh.	Stage from the parking lot at the Camano Island State Park boat ramp (ISL0677), or Everett.	By boat from the Camano Island State Park boat ramp (ISL0677), or Everett. Vehicle access from I-5 to Highway 532 to East Camano Drive to Elger Bay Road.	Tidal marshes, waterfowl concentrations, and sensitive nesting species.
NC-22		Tulalip Bay (Just north of Everett) SNO0086 48º-3.490'N 122º-17.575'W	Exclusion - Keep oil out of the bay.	3000'	Deploy boom in a chevron configuration from the tip of Hermosa Point south to the opposite point northwest of Mission Beach. In poor weather, move the boom inside to protect the bay south of the sand spit across the middle of the bay, running the boom from the end of the sand spit to the shoreline on the east side of the bay.	Stage from the marina in Tulalip Bay, or from Everett.	By boat from the marina in Tulalip Bay, or Everett. Vehicle access from I-5 to Tulalip Road.	Seabird and waterfowl concentrations, sensitive nesting species, and fish resources.
NC-23		Ebey Slough (above I-5, between Everett and Marysville) SNO0114 48º-2.805'N 122º-10.780'W	Exclusion/ Collection - Keep oil out of the slough.	500'	Deploy boom across the slough downstream from the Highway 529 bridge, from the south shore angled north and east to the north shore near the bridge for collection.	Stage off Highway 529 on the northwest side of the bridge, or from Everett.	By boat from Everett. Vehicle access from I-5 to Highway 529.	Seabird and waterfowl concentrations, sensitive nesting species.

4.3.2 Proposed Booming and Collection Strategies: Matrices

Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
NC-24		Steamboat and Union Sloughs (at confluence, between Everett and Marysville) SNO0131 48º-2.050'N 122º-11.485'W	Exclusion - Keep oil out of the sloughs.	1200'	Deploy boom west of the confluence of the two sloughs.	Stage off Highway 529 at the west tip of Spencer Island, or from Everett.	By boat from Everett. Vehicle access from I-5 to Highway 529.	Seabird and waterfowl concentrations, sensitive nesting species.
NC-25		Snohomish River (at mouth in Everett) SNO0162 48º-1.200'N 122º-12.225'W	Exclusion - Keep oil out of the mouth of the river.	1400'	Deploy boom across the river mouth from Preston Point across the river to Smith Island.	Stage from Preston Point, or Everett.	By boat from Everett. Vehicle access from I-5 to Highway 529 South to West Marine View Drive.	Seabird and waterfowl concentrations, sensitive nesting species.

APPENDICES

Appendix A: Summary of Protection Techniques

Protection Techniques	Description	Primary Logistical Requirements	Limitations
ONSHORE			
Beach Berms	A berm is constructed along the top of the mid-inter tidal zone from sediments ex-cavated along the downgradient side. The berm should be covered with plastic or geo-textile sheeting to minimize wave erosion.	• Bulldozer/Motor grader -1 • Personnel - equipment operator & 1 worker • Misc. - plastic or geotextile sheeting	• High wave energy • Large tidal range • Strong along shore currents
Geotextiles	A roll of geotextile, plastic sheeting, or other impermeable material is spread along the bottom of the supra-tidal zone & fastened to the underlying logs or stakes placed in the ground.	• Geotextile - 3 m wide rolls • Personnel - 5 • Misc. - stakes or tie-down cord	• Low sloped shoreline • High spring tides • Large storms
Sorbent Barriers	A barrier is constructed by installing two parallel lines of stakes across a channel, fastening wire mesh to the stakes & filling the space between with loose sorbents.	Per 30 meters of barrier • Wire mesh - 70 m x 2 m • Stakes - 20 • Sorbents - 30 m^2 • Personnel - 2 • Misc. - fasteners, support lines, additional stakes, etc.	• Waves > 25 cm • Currents > 0.5 m/s • Tidal range > 2 m
Inlet Dams	A dam is constructed across the channel using local soil or beach sediments to exclude oil from entering channel.	• Loader - 1 • Personnel - equipment operator & 1 worker or several workers w/shovels	• Waves > 25 cm • Tidal range exceeding dam height • Freshwater outflow

NEARSHORE			
Containment Booming	Boom is deployed in a "U" shape in front of the oncoming slick. The ends of the booms are anchored by work boats or drogues. The oil is contained within the "U" & prevented from reaching the shore.	For 150 meters Slick: • Boom - 280 m • Boats - 2 • Personnel - boat crews & 4 boom tenders • Misc. - tow lines, drogues, connectors, etc.	• High winds • Swells > 2 m • Breaking waves > 50 cm • Currents > 1.0 m/s
Exclusion Booming	Boom is deployed across or around sensitive areas & anchored in place. Approaching oil is deflected or contained by boom.	Per 300 meters of Boom • Boats - 1 • Personnel - boat crew & 3 boom tenders • Misc.- 6 anchors, anchor line, buoys, etc.	• Currents > 0.5 m/s • Breaking waves > 50 cm • Water depth > 20 m
Deflection Booming	Boom is deployed from the shoreline away from the approaching slick & anchored or held in place with a work boat. Oil is deflected away from shoreline.	Single Boom, 0.75 m/s knot current • Boom - 60 m • Boats - 1 • Personnel - boat crew + 3 • Misc. - 3 anchors, line, buoys, recovery unit	• Currents > 1.0 m/s • Breaking waves > 50 cm
Diversion Booming	Boom is deployed from the shoreline at an angle towards the approaching slick & anchored or held in place with a work boat. Oil is diverted towards the shoreline for recovery.	Single Boom, 0.75 m/s knot current • Boom - 60 m • boats - 1 • Personnel - boat crew + 3 • Misc. - 3 anchors, line, buoys, recovery unit	• Currents > 1.0 m/s • Breaking waves > 50 cm
Skimming	Self-propelled skimmers work back & forth along the leading edge of a windrow to recover the oil. Booms may be deployed from the front of a skimmer in a "V" configuration to increase sweep width. Portable skimmers are placed within containment booms in the area of heaviest oil concentration.	Self-propelled (None) Towed • Boom - 200 m • Boats - 2 • Personnel - boat crews & 4 boom tenders • Misc. - tow lines, bridles, connectors, etc. Portable • Hoses - 30 m discharge • Oil storage - 2000 liters	• High winds • Swells > 2 m • Breaking waves > 50 cm • Currents > 1.0 m/s

Source is R. Miller of Clean Sound Cooperative.

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Appendix C: Geographic Response Plan Comments/Corrections/Suggestions

If you have any questions regarding this document or find any errors, please notify one of the following agencies: or use tear out sheet (page C-3)

- Washington Department of Ecology, SPPR program, Natural Resources Unit
- USCG Marine Safety Office Puget Sound, Planning Department
- USCG Marine Safety Office Portland
- Oregon Department of Environmental Quality
- Idaho Emergency Response Commission
- Environmental Protection Agency Region 10

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Geographic Response Plan

Comments/Corrections/Suggestions

Directions:
Fill in your name, address, agency, and phone number. Fill in the blanks regarding the location of information in the plan being commented on. Make comments in the space provided. Add extra sheets as necessary. Submit to:

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Name: _____ Title:_____ Agency:_____

Address:_____

City: _____ State/Province:_____ Zip/Postal Code:_____

Phone: (____) _____ E-Mail:_____

GRP:_____Page Number:_____

Location on page (chapter, section, paragraph) (e.g. 2.1, paragraph 3):_____

Comments:_____

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